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Pathology

CYTOPATHOLOGICAL SPECTRUM OF NON NEOPLASTIC AND NEOPLASTIC THYROID LESIONS AT TERTIARY CARE CENTRE, GWALIOR

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ABSTRACT

Background: Thyroid lesions are the important clinical problems encountered in most of patients coming to the tertiary care centre. Fine Needle Aspiration Cytology (FNAC) is the widely accepted diagnostic technique in thyroid lesions. A solitary thyroid nodule is defined as a palpable, single, clinically detectable nodule in the thyroid. They cause more concern because of high probability of malignancy in them, which can range from 5-35% of all solitary thyroid nodules. Nodular lesion comprises those disorders that produce a clinical nodule and consists of non-neoplastic hyperplasia as well as benign and malignant tumors.

Aims and Objectives: To study the spectrum of clinical presentation of individuals with thyroid lesions and cytomorphological features.

Material and methods: A retrospective study was carried out in cytopathology section in Department of Pathology from January 2015 to December 2017. Total 212 patients with palpable thyroid swelling referred from the OPD of J.A hospital for FNAC were included in the study. The smears made from the aspirate were air dried and stained with May-Grunwald-Giemsa (MGG) stain.

Result: The present study was carried out in the Department of Pathology from January 2015 to December 2017. Out of 212 cases most common thyroid lesion was Colloid goitre 35.38%(n=75) followed by Colloid goitre with cystic changes 19.81%(n=42), Follicular Neoplasm 19.34%(n=41), Hashimoto thyroiditis 7.55%(n=16), Colloid cyst 6.13%(n=13), Infected cystic lesion 2.83%(n=6), Benign hyperplasia of thyroid 2.36%(n=5), Adenomatoid goitre 1.89%(n=4), Thyroglossal cyst 1.89%(n=4), Granulomatous thyroiditis 1.41%(n=3), Papillary thyroid carcinoma 0.94%(n=2) and least common was Lymphoma of thyroid 0.47%(n=1).

Conclusion: FNAC is almost an accurate technique in diagnosis of palpable and overt thyroid lesions. Thyroid lesions are more common in females than males. Colloid goitre is the commonest thyroid lesion.

KEYWORDS : Thyroid, Lesion, Fine needle aspiration cytology (FNAC)

INTRODUCTION

Thyroid gland is the largest and specialized endocrine organ which has various functions in our body and it is essential for our survival and metabolic functions. Incidence of thyroid gland lesion vary in relation to the geographical area, age, sex, dietary and environmental factors.[1] Thyroid disorders are the most common endocrine diseases particularly in countries where iodine intake through diet is low.

Disorders involving thyroid have been unique in both presentation and symptoms. After diabetes mellitus, the thyroid gland is the most common organ to cause endocrine disorders.[2] Diseases of the thyroid gland are common and comprise a spectrum of entities causing systemic disease (Grave's disease) or a localised abnormality in the thyroid gland such as nodular enlargement (goitre) or tumor mass. Incidence of palpable thyroid lesion in Indian subcontinent is around 4-7% among which most of thyroid swellings are benign while less than 5% are malignant in nature.[3-4] Most of thyroid swellings occur in between 30 and 60 years of age. Histological classification of thyroid lesions is necessary for further management and prognosis especially for neoplastic conditions.[5]

MATERIAL AND METHODS

This is a 3 year retrospective study from January 2015 to December 2017. The study sample consisted of all patients of thyroid swellings irresspective of their age, sex referred for cytological study from ENT OPD, Surgery OPD and other departments. In this study we performed FNAC procedure on all palpable thyroid lesions. 22-25 gauge needle attached to 20 ml syringe was used for aspiration. Material was aspirated from 2 to 3 different sites in the lesion and the aspirate was smeared in clean glass slide and air dried smear. May-Grunwald-Giemsa (MGG) staining was done and using DPX MOUNTANT slides were prepared. Stained slides were examined under the microscope. Statistical analysis was done by standard methods for sensitivity, specificity and diagnostic accuracy.

RESULTS

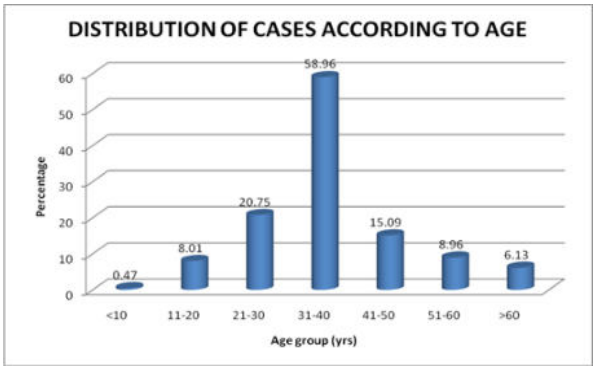
The study was carried out in the Department of Pathology from January 2015 to December 2017. It was a retrospective analysis of 212 cases with thyroid swellings referred to FNAC.

In the study most common age group among the patient was 31-40 years (58.96%), followed by 21-30 years (20.75%), 41-50 years (15.09%), 51-60 years (8.96%), 11-20 years(8.01%), >60 years (6.13%) and least common age group was <10 years (0.47%) which is shown in table 1. Out of 212 cases, the percentage of female and male cases were 82.55% (n= 175) and 17.45% (n= 37) respectively. Thyroid disease occurs more commonly in female than male.

Table 1: Age wise distribution of thyroid cases

Age group in years	No. of cases	Percentage
<10 years	1	0.47%
11-20	17	8.01%
21-30	44	20.75%
31-40	86	58.96%
41-50	32	15.09%
51-60	19	8.96%
>60	13	6.13%

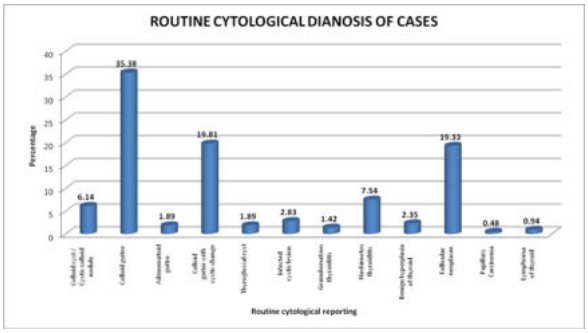
Graph 1



Out of 212 cases most common thyroid lesion was Colloid goitre 35.38%(n=75) followed by Colloid goitre with cystic changes 19.81%(n=42), Follicular Neoplasm 19.34%(n=41), Hashimoto thyroiditis 7.55%(n=16), Colloid cyst 6.13%(n=13), Infected cystic lesion 2.83%(n=6), Benign hyperplasia of thyroid 2.36%(n=5), Adenomatoid goitre 1.89%(n=4), Thyroglossal cyst 1.89%(n=4), Granulomatous thyroiditis 1.41%(n=3), Papillary thyroid carcinoma 0.94%(n=2) and least common was Lymphoma of thyroid 0.47%(n=1).

Table 2: Routine cytological diagnosis of 212 cases

Routine cytological reporting	No. of cases	Percentage (%)
Colloid cyst / Cystic colloid nodule	13	6.13
Colloid goitre	75	35.38
Adenomatoid goiter	4	1.89
Colloid goiter with cystic change	42	19.81
Thyroglossal cyst	04	1.89
Infected cystic lesion	06	2.83
Granulomatous thyroiditis	03	1.41
Hashimotos thyroiditis	16	7.55
Benign hyperplasia of thyroid	5	2.36
Follicular neoplasm	41	19.34
Papillary Carcinoma	2	0.94
Lymphoma of thyroid	1	0.47

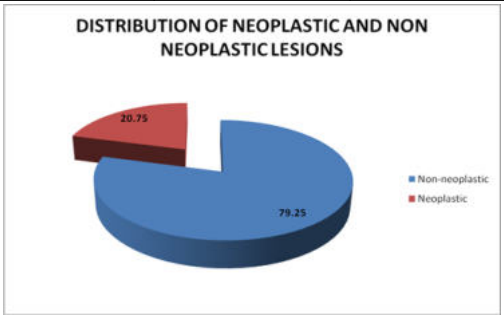


Graph 2

Out of 212 cases neoplastic and non-neoplastic thyroid lesions were 20.75% (n= 44) and 79.25% (n= 168) respectively.

Table 3: Distribution of neoplastic and non-neoplastic thyroid lesions

Thyroid lesions	Number of cases	Percentage
Non-neoplastic	168	79.25%
Neoplastic	44	20.75%
Total	212	100



Graph 3

DISCUSSION

The present study comprising of cytomorphological study of thyroid lesions. Both non-neoplastic and neoplastic thyroid lesions are common all over the world with varying incidence and extent accredited to iodine deficiency and other environmental factors.[1]

Total 212 cases with thyroid lesions were studied. Out of 212 cases female to male ratio in our study was 4.73:1 which is similar to Singh P et al[6] study in which the ratio was 4.7:1**.** It is a well known fact that thyroid diseases affect females more commonly than males.

In the present study most of patients belongs to the age group between 20-50 years, which was also noted in the study by Sameer et al[7] and Khadatkar et al[8]. In present study the youngest patient was 9 year female and the oldest patient was 72 year male.. The mean age of patients with thyroid lesions in our study was 40.8 years.

In the present study out of 212 cases non-neoplastic and neoplastic thyroid lesions were 79.25% (n= 168) and 20.75% (n= 44) respectively which were similar to the results seen in study by Uma et al[9] and Dhanadia et al[10]. Out of 212 cases most common thyroid lesion was Colloid goitre 35.38%(n=75) followed by Colloid goitre with cystic changes 19.81%(n=42), Follicular Neoplasm 19.34%(n=41), Hashimoto thyroiditis 7.55%(n=16), Colloid cyst 6.13%(n=13), Infected cystic lesion 2.83%(n=6), Benign hyperplasia of thyroid 2.36%(n=5), Adenomatoid goitre 1.89%(n=4), Thyroglossal cyst 1.89%(n=4), Granulomatous thyroiditis 1.41%(n=3), Papillary thyroid carcinoma 0.94%(n=2) and least common was Lymphoma of thyroid 0.47%(n=1).

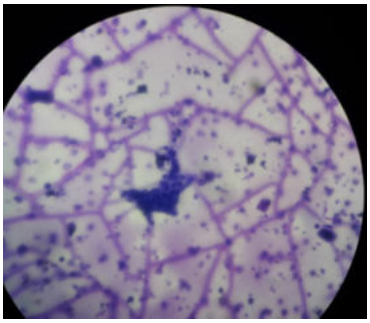


Figure 1 : Colloid goitre

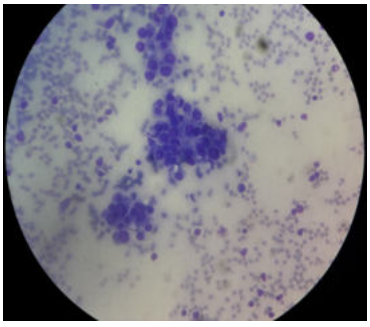


Figure 2: Follicular neoplasm with hurthle cell change (MGG, 40X)

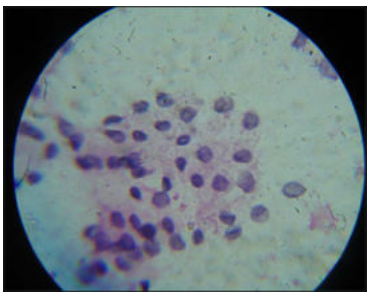


Figure 3 : Paillary carcinoma showing nuclear grooving (MGG, 40X)

CONCLUSION

Fine Needle Aspiration Cytology (FNAC) is most reliable technique in diagnosis of palpable and overt thyroid lesions. FNAC has low cost, minimal invasion, high accuracy and high sensitivity and specificity so it is widely accepted diagnostic method in thyroid lesion. The results of thyroid cytology must be assessed in conjunction with the clinical findings and other investigations.

Our study shows that thyroid lesions are common in females than males and most of them occurring in an age group of 21-40 years. Colloid goitre is the commonest non-neoplastic and follicular neoplasm is the commonest neoplastic thyroid lesion.

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